



Memorandum

To: Andres Molina
From: Todd S Goyette
Date: August 2, 2004
Subject: EMF Simulations for Wachusett Substation – Optimized

Per your request, we have analyzed the various arrangements and resulting affects on the electric and magnetic fields at the following three locations near the Wachusett Substation in West Boylston, Massachusetts.

- Tower 114 – facing North
- Tower 121 – facing North
- Tower 123 – facing North

Each tower number is in reference to the 345kV line, 343.

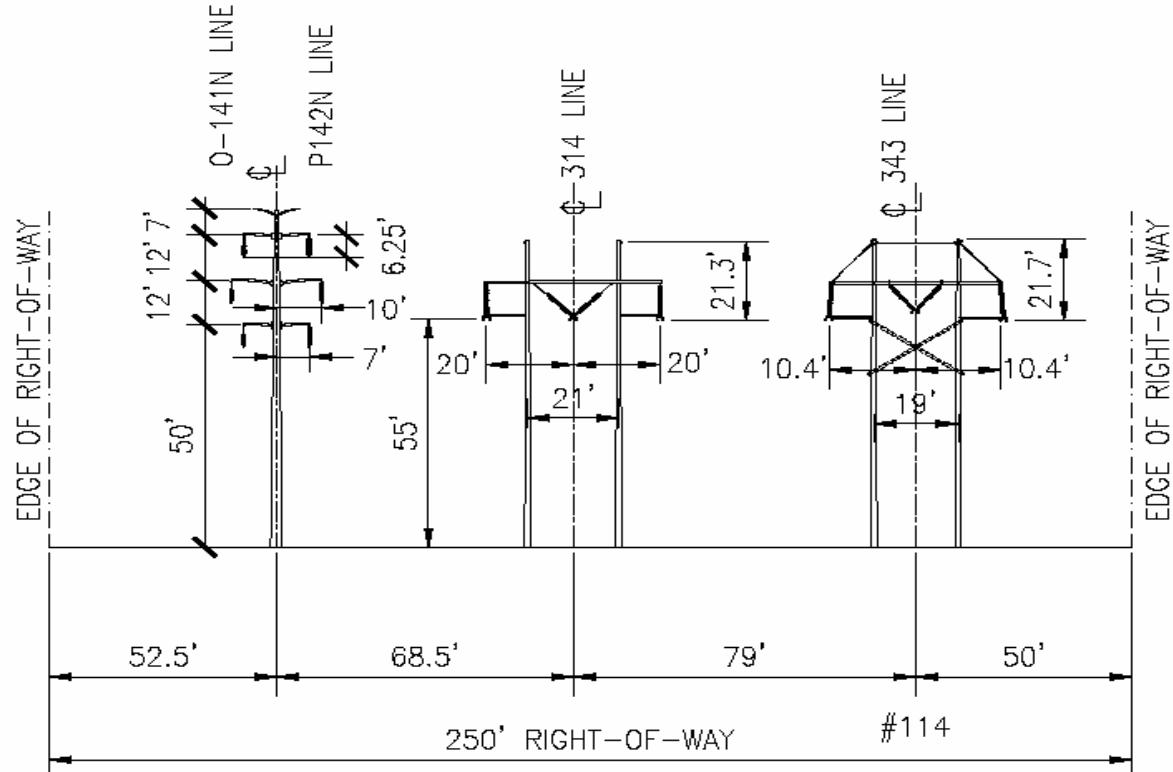
The new calculations are simulated in an attempt to minimize the resultant magnetic field in the right of way. To minimize the field strength, the phasing will need to be changed on both the 345kV line, 314 and on the 115kV line, O-141 as shown in the attached figures. In order to achieve the maximum cancellation benefits, the 115kV line, O-141, will need to change to a different phasing arrangement on either side of the Wachusett substation.

At each location, the field strength was simulated for the peak summer loading before (2003) and after (2006) the installation of the proposed 345/115kV substation. Peak summer loading conditions represent the maximum anticipated coincident loading on the referenced lines.

Field strengths are given for a height of 1 meter (3.28 feet) relative to the ground.

If you have any questions or require additional information please call me at x57624.

FIGURE 3 : CROSS SECTION – TOWER #114



CROSS SECTION FACING NORTH
SOUTH OF TEMPLE STREET

SKETCH 1

NOTE: ALL DIMENSIONS TYPICAL

Scale: NTS

FIGURE 4 : ELECTRIC FIELD AT TOWER 114

Wachusett Substation - Electric Field at Tower 114

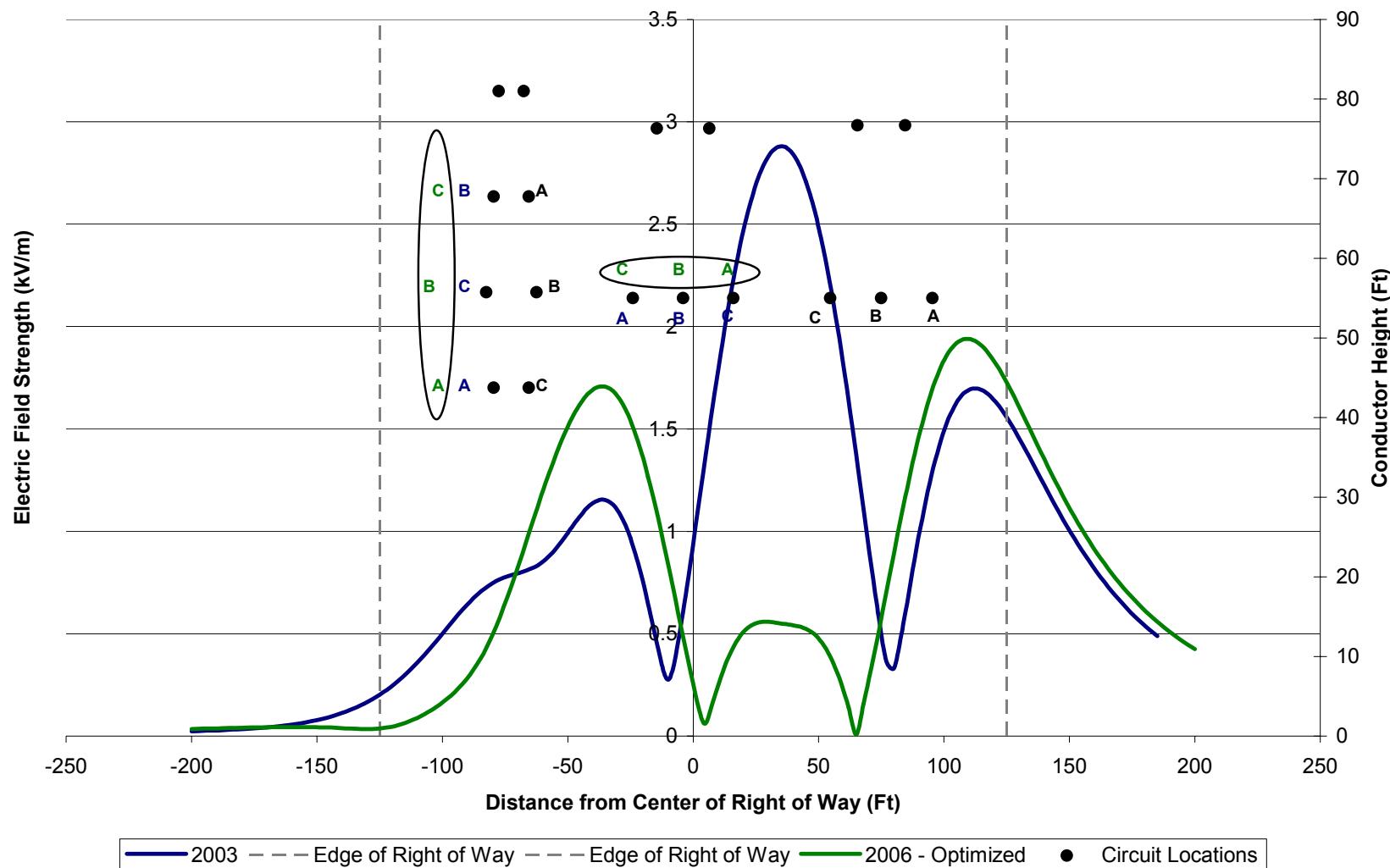


FIGURE 5 : MAGNETIC FIELD STRENGHT AT TOWER 114

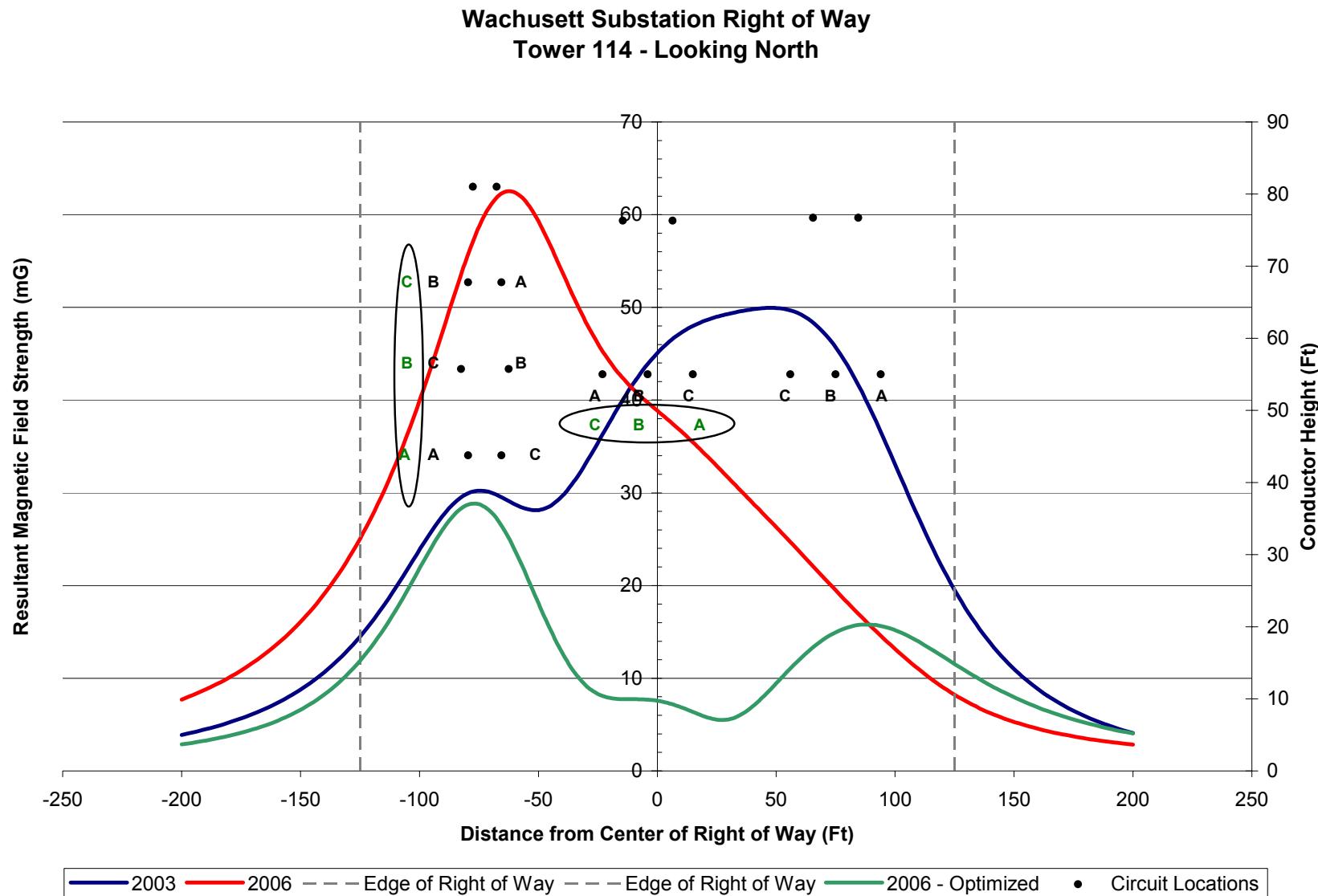
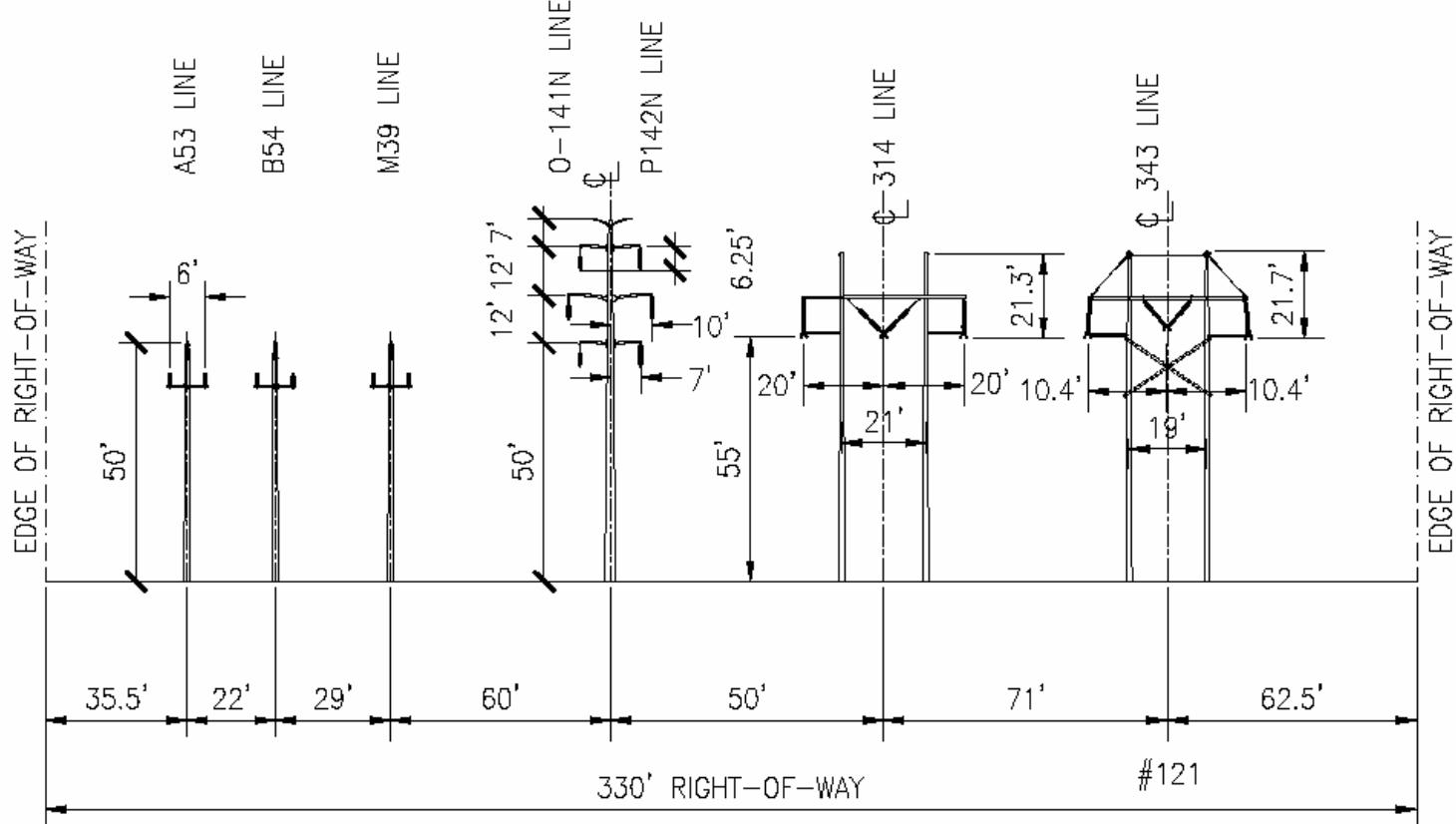


FIGURE 6 : CROSS SECTION – TOWER 121



**CROSS SECTION FACING NORTH
NORTH OF WACHUSETT SUB**

SKETCH 3

NOTE: ALL DIMENSIONS TYPICAL

Scale: NTS

FIGURE 7 : ELECTRIC FIELD STRENGTH AT TOWER 121

Wachusett Substation - Tower 121

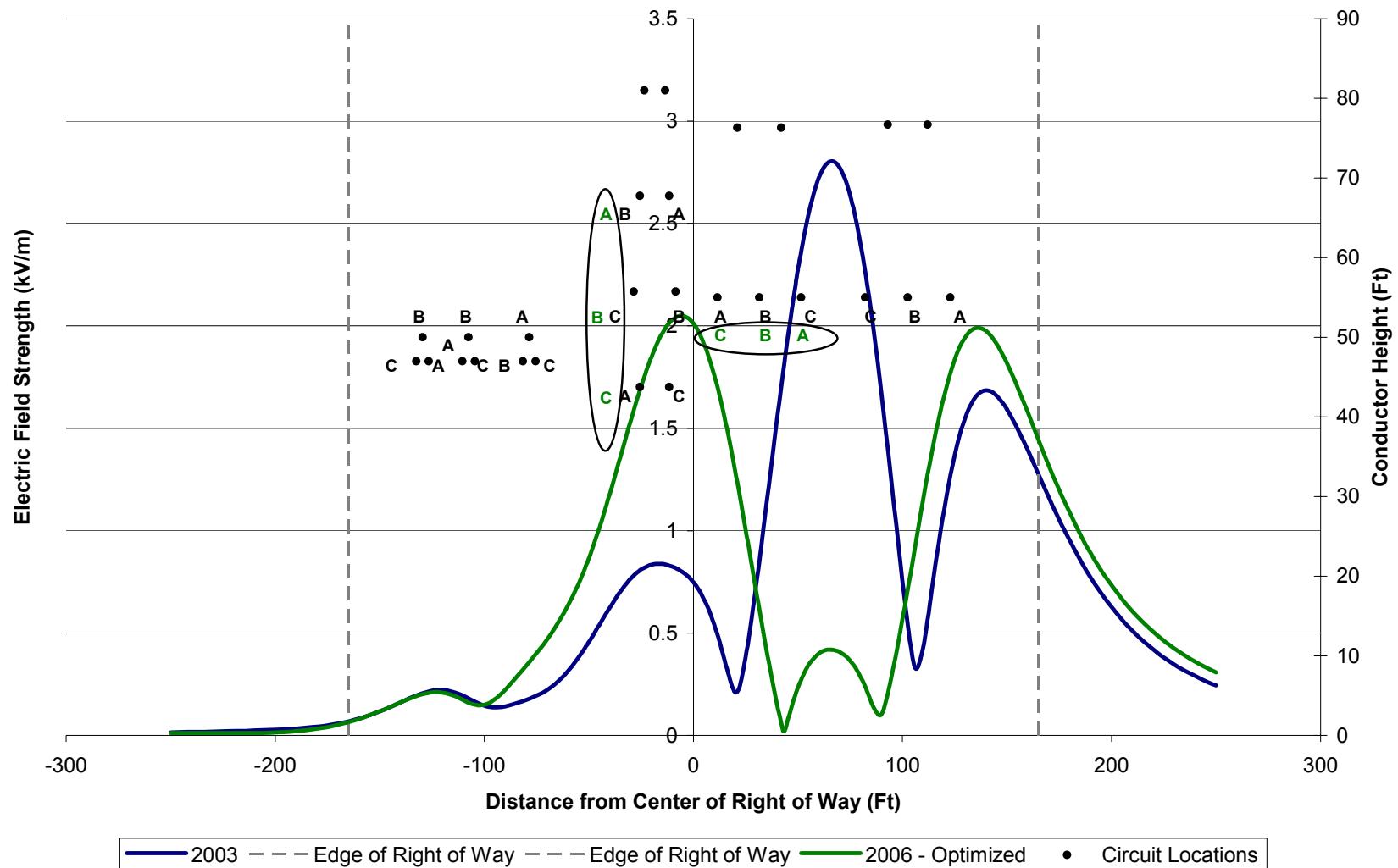


FIGURE 8 : MAGNETIC FIELD STRENGTH AT TOWER 121

**Wachusett Substation Right of Way
Tower 121 - Looking North**

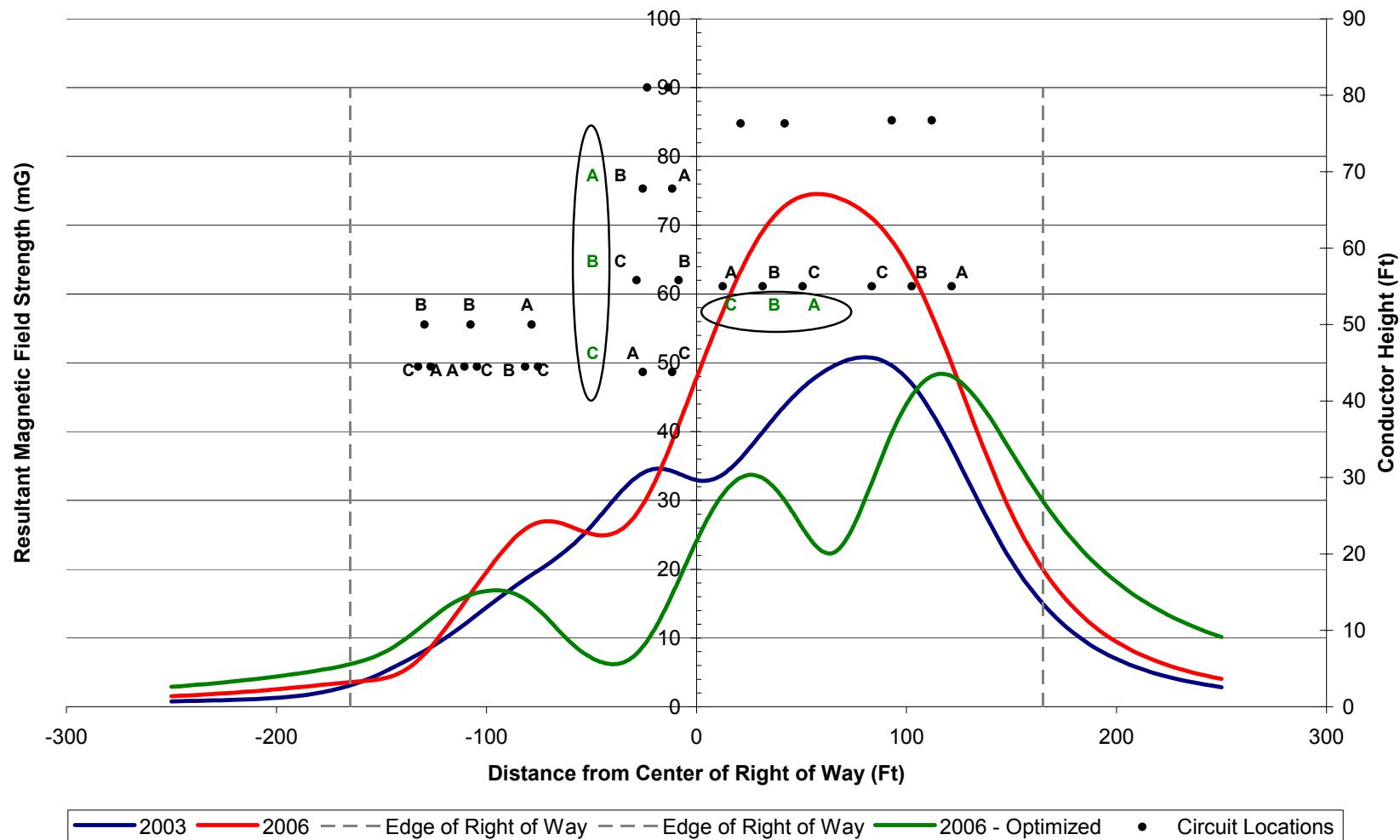
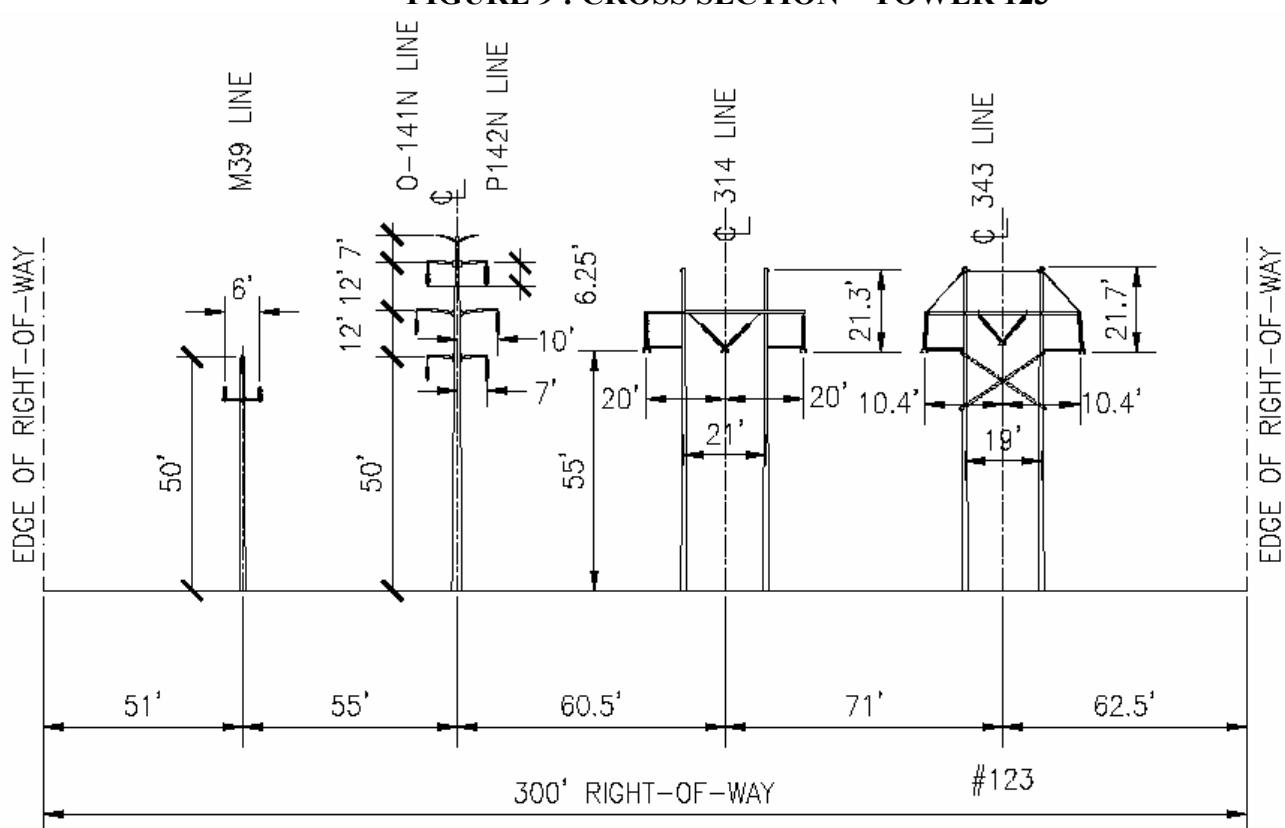


FIGURE 9 : CROSS SECTION – TOWER 123



CROSS SECTION FACING NORTH
NORTH OF WACHUSSETT SUB

SKETCH 2

NOTE: ALL DIMENSIONS TYPICAL

Scale: NTS

FIGURE 10 : ELECTRIC FIELD STRENGHT AT TOWER 123

Wachusett Substation - Tower 123

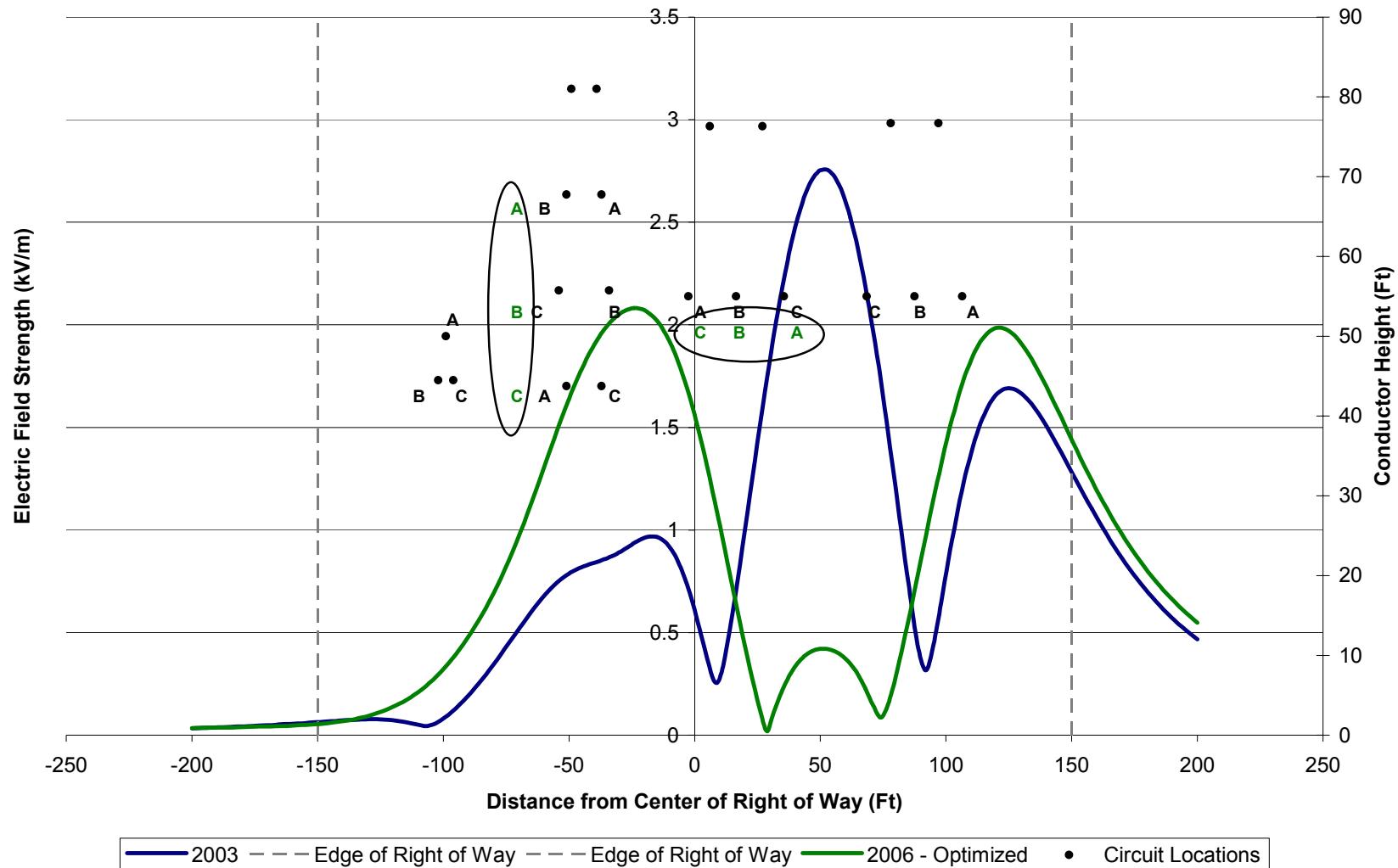


FIGURE 11: MAGNETIC FIELD STRENGTH AT TOWER 123

**Wachusett Substation Right of Way
Tower 123 - Looking North**

